

**Amendments to the Claims:**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1-50. (Canceled)

51. (Previously Presented) An optical disk for recording information thereon and reproducing the information therefrom, the optical disk being housed rotatably in a cartridge case:

a disk substrate having a hole formed through the center thereof;

a recording layer which is formed on the substrate and on which the information is recorded;

a hub provided on the center of the substrate so as to be movable relative to the substrate, the hub having an outer diameter which is 26 or more % of that of the optical disk;

the optical disk satisfies a relationship of  $Y/X \geq 0.015$ , where X is a projected area of the substrate and Y is a contact area between the hub and the substrate.

52. (Previously Presented) The optical disk according to Claim 51, wherein the cartridge case defines a space therein, and a size of the space is 300 or more % of a thickness of the substrate.

53. (Previously Presented) The optical disk according to Claim 51, wherein the cartridge case has a recess and a protrusion formed on the inner surfaces thereof which face the disk, and the recess and protrusion adjust airflow in the cartridge case while the disk is rotating and are arranged to diverge away from the center of the disk at angle between 5 and 90 degrees.

54. (Previously Presented) The optical disk according to Claim 51, wherein the hub has a convex center portion with a side wall sloping at an angle between 130 and 160 degrees at half the height of the hub.

55. (Previously Presented) The optical disk according to Claim 51 wherein the substrate has a thickness of 0.7 or less mm.

56. (Previously Presented) The optical disk according to Claim 51, wherein the projected area X and the contact area Y satisfy the relationship of  $Y/X \geq 0.02$ .

57. (Previously Presented) The optical disk according to Claim 56, wherein the disk is rotated at a speed of 2,400 or more rpm for recordation and reproduction.

58. (Currently Amended) A disk substrate for an optical disk which is mounted on a magnetic mounting part of a driving apparatus for driving the optical ~~disk~~ disk, comprising:

a disk plane tilting substantially with respect to a plane perpendicular to an axis of rotation of the ~~substrate~~; substrate and the disk plane tilting symmetrically with respect to the axis of rotation; and

a hub which is attractable by the magnetic part to press the optical disk in such manner that the disk plane becomes horizontal when the disk is mounted on the mounting part of the driving apparatus.

59. (Previously Presented) The disk substrate according to Claim 58 wherein the substrate has a thickness of less than 0.8 mm.

60. (Previously Presented) The disk substrate according to Claim 58, further comprising a cylindrical receptacle formed in a center thereof for holding the hub, the receptacle having a hole formed through the bottom thereof coaxially with the axis of rotation.

61. (Previously Presented) The disk substrate according to Claim 60, wherein the disk plane tilts at an angle  $\theta$  away from the bottom of the cylindrical receptacle, and the angle  $\theta$  satisfies the relationship of  $1 \text{ mrad} \leq \theta \leq 20 \text{ mrad}$ .

62. (Previously Presented) The disk substrate according to Claim 61, wherein the hub is held movably in the cylindrical receptacle.

63. (Previously Presented) The disk substrate according to Claim 62, wherein the disk substrate has a thickness between 0.1 and 0.7 mm.

64. (Previously Presented) The disk substrate according to Claim 58, a relationship of  $Y/X \geq 0.015$  is satisfied, where X and Y respectively denote the projected area of the substrate and the contact area between the hub and the substrate.

65. (Previously Presented) The disk substrate according to Claim 58, wherein the hub has an outer diameter that is 26 or more % of the outer diameter of the substrate.

66. (Previously Presented) An optical disk which has the disk substrate according to Claim 58.

67. (Currently Amended) A disk substrate for an optical disk, the substrate having an axis of rotation and a thickness of less than 0.8 mm, wherein a disk plane tilts at a tilt angle  $\theta$ , which satisfies  $10 \text{ mrad} \leq \theta \leq 20 \text{ mrad}$ , with a plane perpendicular to the axis of ~~rotation~~ rotation after the substrate has been manufactured.

68. (Previously Presented) The disk substrate according to Claim 67, further comprising a hub that can be magnetically attracted.

69. (Canceled)

70. (Previously Presented) The disk substrate according to Claim 67, further comprising a cylindrical receptacle formed in the center thereof for holding the hub, the receptacle having a hole formed through the bottom thereof coaxially with the axis of rotation.

71. (Previously Presented) The disk substrate according to Claim 70, wherein the hub is held movably in the cylindrical receptacle.

72. (Previously Presented) The disk substrate according to Claim 67, wherein the disk substrate has a thickness between 0.1 and 0.7 mm.

73. (Previously Presented) The disk substrate according to Claim 68, wherein a relationship of  $Y/X \geq 0.015$  is satisfied, where X and Y respectively denote the projected area of the substrate and the contact area between the hub and the substrate.

74. (Previously Presented) The disk substrate according to Claim 68, wherein the hub has an outer diameter that is 26 or more % of the outer diameter of the substrate.

75. (Previously Presented) An optical disk including the disk substrate according to Claim 68.

76. (Currently Amended) A driving apparatus for driving a record disk having a tilt and a hub which is magnetically attracted to press the record disk, comprising:

a driving-unit; unit that drives a record disk having a substrate which has a disk plane tilting substantially with respect to a plane perpendicular to an axis of rotation of the substrate and the disk plane tilting symmetrically with respect to the axis of rotation; and

a support for supporting a part of the record disk to adjust the tilt of the record disk as the hub presses the record disk against the support, wherein the record disk has an axis of rotation and a disk plane substantially tilting with respect to a plane perpendicular to the axis of rotation; support.

77. (Canceled)

78. (Previously Presented) The driving apparatus according to Claim 76, wherein the record disk has an axis of rotation, a thickness of less than 0.8 mm and a disk plane tilting at a tilt angle  $\theta$  with a plane perpendicular to the axis of rotation, the tilt angle  $\theta$  satisfying the relationship of  $1 \text{ mrad} \leq \theta \leq 20 \text{ mrad}$ .

79. (Previously Presented) The driving apparatus according to Claim 76, wherein the record disk has an axis of rotation and a cylindrical receptacle for holding the hub, the receptacle having a hole formed through the bottom thereof coaxially with the axis of rotation.

80. (Previously Presented) The driving apparatus according to Claim 76, wherein the driving unit has a rotating shaft for rotating the record disk, and the support is formed at the top of the shaft.

81. (Previously Presented) The driving apparatus according to Claim 79, wherein the driving unit has a rotating shaft for rotating the record disk, the rotating shaft has a cylindrical recess formed coaxially in the top thereof for holding the cylindrical receptacle, the rotating shaft also has a side wall defining the recess, and the support is formed at the top of the side wall.

82. (Previously Presented) The driving apparatus according to Claim 81, wherein the rotating shaft protrudes axially from the bottom of the cylindrical recess, and the shaft includes:

a first columnar protrusion having an outer diameter larger than that of the hole in the bottom of the record disk; and

a second columnar protrusion protruding coaxially from the first protrusion axially of the rotating shaft.

83. (Previously Presented) The driving apparatus according to Claim 79, wherein the disk plane tilts at an angle  $\theta$  with a direction perpendicular to the axis of rotation away from the bottom of the cylindrical receptacle, and the angle  $\theta$  satisfies a relationship of  $1 \text{ mrad} \leq \theta \leq 10 \text{ mrad}$ .

84. (Previously Presented) The driving apparatus according to Claim 81, wherein the top of the cylindrical wall defining the recess of the rotating shaft extends radially outward.

85. (Previously Presented) The driving apparatus according to Claim 82, wherein, when the record disk is mounted on the driving apparatus, the hole of the disk engages with the second protrusion to support the disk plane of the disk on top of the horizontal support,

whereby the disk plane is kept at an angle of 10 or less mrad with a plane perpendicular to the axis of rotation of the disk.

86. (Previously Presented) The driving apparatus according to Claim 80 the rotating shaft includes a magnet fitted therein for attracting the hub.

87. (Previously Presented) The driving apparatus according to Claim 86, wherein the magnet is an electromagnet.

88. (Previously Presented) A driving apparatus for recording and reproducing information by radiating light onto the recording surface of a record disk including a hub that is magnetically attracted to press a part of the disk, comprising:

a light source for irradiating the record disk with light;

a tilt sensor for measuring a tilt angle of the recording surface of the record disk relative to the optical axis of the light incident on the disk;

a rotating shaft for rotating the record disk;

an electromagnet embedded in the rotating shaft; and

a controller for controlling the magnetic field intensity of the electromagnet based on the tilt angle detected by the tilt sensor, and for adjusting the force with which the hub presses the disk plane of the record disk.

89. (Previously Presented) The driving apparatus according to Claim 88, wherein the disk plane substantially tilts with respect to a plane perpendicular to the axis of rotation of the record disk.

90. (Previously Presented) The driving apparatus according to Claim 88, wherein the record disk has a thickness of less than 0.8 mm, the disk plane tilts at a tilt angle  $\theta$ , which satisfies a relationship of  $1 \text{ mrad} \leq \theta \leq 20 \text{ mrad}$ , with a plane perpendicular to the axis of rotation of the disk.

91. (Previously Presented) The driving apparatus according to Claim 88, wherein the record disk includes a cylindrical receptacle for holding the hub, and the receptacle has a hole formed through the bottom thereof coaxially with the axis of rotation of the disk.

92. (Previously Presented) The driving apparatus according to Claim 89, wherein the controller controls the electromagnet to rotate the record disk so that the disk plane makes an angle of 10 or less mrad with the plane perpendicular to the axis of rotation.

93. (Previously Presented) The driving apparatus according to Claim 91, wherein the disk plane tilts at an angle  $\theta$  with a direction perpendicular to the axis of rotation away from the bottom of the cylindrical receptacle, and the angle  $\theta$  satisfies a relationship of  $1 \text{ mrad} \leq \theta \leq 20 \text{ mrad}$ .

94. (Previously Presented) The driving apparatus according to Claim 91, wherein the rotating shaft includes a support on top, on which the cylindrical receptacle can rest, and the support includes:

a first columnar protrusion protruding coaxially with the rotating shaft and having an outer diameter larger than that of the hole in the bottom of the record disk; and

a second columnar protrusion protruding from the first protrusion coaxially with the rotating shaft.